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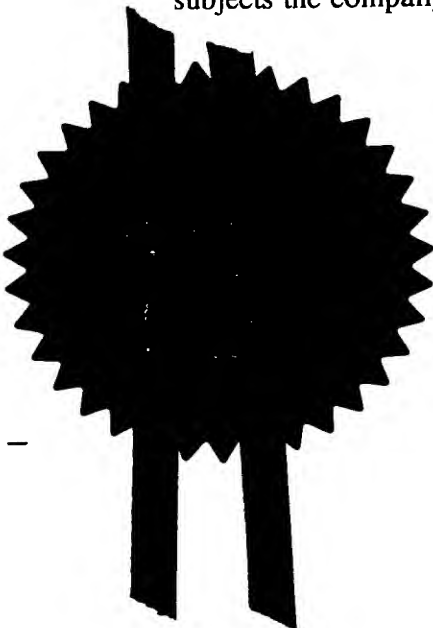
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9720275.8

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25SEP97 E305188-1 D02903
P01/7700 25.00 - 9720275.8

The Patent Office

Cardiff Road
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1. Your reference

10184P1 GB

2. Patent application number

(The Patent Office will fill in this part)

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Reckitt & Colman Products Limited
One Burlington Lane
LONDON
W4 2RW

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

ENGLAND

4. Title of the invention

Improvements in or relating to Organic Compositions

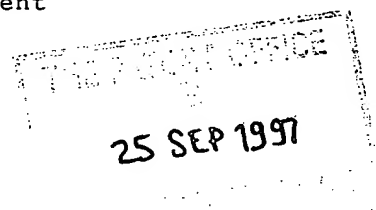
5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Mr Martin N. Dale
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Group Patents Department
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ENGLAND

Patents ADP number (if you know it)

0 608761 0001



6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
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Date of filing
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
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Description	22 pages	✓
Claim(s)	6 pages	✓
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Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)	2
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Request for preliminary examination and search (Patents Form 9/77)	1
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Request for substantive examination (Patents Form 10/77)	
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Any other documents
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Fee Sheet (FS1)

11. I/We request the grant of a patent on the basis of this application.

Signature 
Martin N. Dale

Date 24.09.97

12. Name and daytime telephone number of person to contact in the United Kingdom
- | | |
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| Martin N. Dale | 01482 582905 |
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Improvements in or relating to organic compositions

It has been known for a long time that house dust
5 can trigger allergenic reactions in humans, such as
asthma and rhinitis. It was reported, as early as
1928, that it was the dust mites in the dust that were
the primary source of the allergenic response but it
was only in the 60's that researchers appreciated its
significance.

10 It is believed that the faeces of the house dust
mite, *Dermatophagoides farinae* (known as Der-f) and
Dermatophagoides pteronyssinus (known as Der-p) trigger
the immune responses of the body, thereby giving rise
15 to well known allergenic symptoms.

A review of this is given in **Experimental and
Applied Acarology, 10 (1991) p. 167-186** in an article
entitled "House dust-mite allergen" : A review by L. G.
Arlian.

20 One way to overcome these allergenic response has
been to thoroughly vacuum surfaces, such as carpets,
that contain the dust mites and their faeces thoroughly
and often, but that is both time consuming (i.e. has to
25 be regularly done if one wants to make an allergenic
free environment) and is very dependant on the
efficiency of vacuum cleaner and filter bag used e.g.
micron filter bag or 2 layer vacuum bags.

30 An alternative method of creating an allergen-free
environment has been to denature the allergen, for

example as described in US Patent No. 4,806,526. The only effective method however of which we are aware is to apply tannic acid to the allergen. However, tannic acid can cause staining, and this is a particularly acute problem for light coloured carpets (e.g. white and light beige carpets) and other textile surfaces as tannic acid leaves a deep brown stain.

Therefore, we have been looking for allergenic denaturants which will not stain susceptible surfaces such as carpets and still deactivate the allergen.

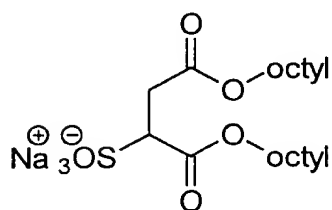
We have surprisingly found that deactivants are specific to the type of dust mite allergen being treated. For example an effective Der-f allergen deactivants will not automatically work effectively as a Der-p allergen deactivant.

We have looked into Der-f allergen deactivant and have found only a select number of deactivants destroy the Der-f allergen, whilst at the same time not leaving a stain.

According to the invention there is provided a method for deactivating a Der-f allergen comprising contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after defined as the deactivant) selected from

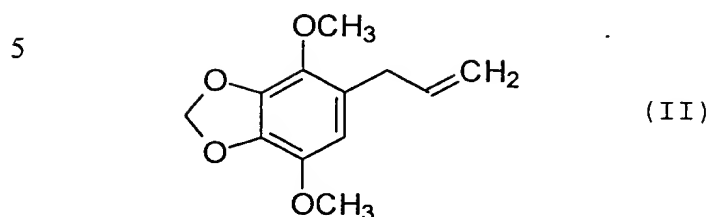
- i) urea,
- ii) cedarwood oil,
- iii) cyclodextrin,
- iv) hexadecyltrimethylammonium chloride
- v) aluminium chlorohydrate,

- vi) 1-propoxy-propanol-2,
- vii) polyquaternium-10
- viii) silica gel ,
- ix) hydrogenated hop oil,
- x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- xii) ammonium sulphate,
- xiii) hinokitiol,
- xiv) N-methyl pyrrolidone,
- xv) L-ascorbic acid,
- xvi) "immobilised tannic acid", (hereinafter
defined)
- xvii) chlorohexidine,
- xviii) maleic anhydride,
- xix) the sodium salt of anthraquinone,
- xx) hinoki oil,
- xxi) a composite of AgCl and TiO₂
- xxii) diazolidinyl urea,
- xxiii) 6-isopropyl-m-cresol,
- xxiv) a compound of formula I,

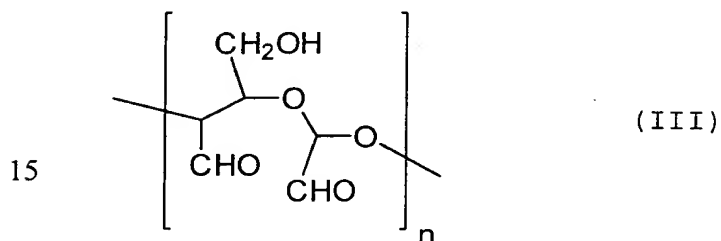


(I)

xxv) a compound of formula II



xxvi) a polymeric compound containing two or more of
10 a recurring unit of the formula III



where $n = 2$ to 200.

20 In this Specification, the definition of the following compounds or compositions is given below:
A compound of formula I is commercially available as Aerosol OT.

25 A compound of formula II is commercially available as parsley camphor.

Hinoki oil is a mixture of Thujan-3-one, 2-pinene, 3,5,7,3',4' pentahydroflavanone and 1,3,3,-trimethyl-2-norcamphanone.

Cedarwood oil, contains α - and β - cedrene (ca 80%), cedrol (3-14%) and cedrenol. Other sesquiterpenes and some monoterpenes are also present.

5 Polyquaternium-10 is a polymeric quaternary ammonium salt of hydroxy ethyl cellulose reacted with a trimethyl ammonium substituted epoxide commercially available as Polymer JR-125.

10 Silica gel is also known as colloidal silica or silicic acid and is commercially available as Kent.

Hinokitiol is also known as β -thujaplicin.

15 "Immobilised tannic acid" is tannic acid on polyvinyl pyrrolidone beads. "Immobilised Tannic Acid" is prepared as follows:

20 100 mg of tannic acid dissolved in water, 50 mg of Polyclar 10 (ISP, Guildford Surrey) polyvinyl pyrrolidone beads were added and stirred for one hour. The beads were filtered off the solution and washed with a few mls of iced water until no colour was seen in the washings. They were then dried in the oven at 50°C.

25 The composite of silver chloride and TiO_2 is made up of 20% wt/wt AgCl on 80% TiO_2 3-5 μm porous beads.

The deactivant is present in an amount of from 0.01 - 7%, preferably 0.01 to 3%.

Preferably the amount of deactivant present in such a method is from 0.5 oz to 5 oz per 10 yds², more preferably 1 oz per 11 yds² of area treated.

5 Preferably the deactivant is selected from

hinoki oil,
a composite of AgCl and TiO₂,
diazolidinyl urea
6-isopropyl-m-cresol,
10 chlorohexidine,
maleic anhydride,
the sodium salt of anthraquinone and
a compound of formula I or II, defined above.

15 Further according to the invention there is provided an aerosol composition containing

a) a deactivant (hereinafter the Deactivant) selected from

- i) urea,
- 20 ii) cedarwood oil,
- iii) cyclodextrin,
- iv) hexadecyltrimethylammonium chloride
- v) aluminium chlorohydrate,
- vi) 1-propoxy-propanol-2,
- vii) polyquaternium-10,
- 25 viii) silica gel ,
- ix) hydrogenated hop oil,
- x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- xii) ammonium sulphate,
- 30 xiii) hinokitinol,
- xiv) N-methyl pyrrolidone,

- xv) L-ascorbic acid,
xvi) "immobilised tannic acid", (hereinafter
defined)
xvii) chlorohexidine,
xviii) maleic anhydride,
5 xix) the sodium salt of anthraquinone,
xx) hinoki oil,
xxi) a composite of silver chloride and TiO_2 ,
xxii) diazolidinyl urea,
xxiii) 6-isopropyl-m-cresol,
10 xxiv-xxvi) a compound of formula I, II or III defined
above;

b) a propellant and

- 15 c) optionally a solvent.

Preferably the amount of deactivant present in such
a composition is from 0.01 - 7%, preferably 0.01 to 3%,

- 20 Preferably the amount of propellant present in such
a composition is 4-50%, more preferably 4 to 30%,

Preferably the amount of solvent present in such a
composition is 0 to 99.95, more preferably 0 to 90%,
most preferably 20 to 90%.

- 25 Preferably the deactivant is selected from

- hinoki oil,
a composite of AgCl with TiO_2 ,
diazolidinyl urea,
30 6-isopropyl-m-cresol,
chlorohexidine,

maleic anhydride,
the sodium salt of anthraquinone and
a compound of formula I or II defined above.

5 Preferably the propellant is selected from those
commercially available, for example C₁₋₄ alkanes and
hydrochlorofluorocabrons and compressed gases such as
nitrogen air and carbon dioxide.

10 Preferably the solvent is selected from C₁₋₆ alcohols
(e.g. ethanol) or water.

In addition the composition may also contain one or
more of the following

15 a fragrance, (preferably in an amount of 0 to 5%),
more preferably 0 to 2%.

an antimicrobial compound e.g. alkyl dimethyl benzyl
ammonium saccharinate (preferably in an amount of 0.01
to 1%)

20 a surfactant (e.g. Dow Corning 193 Surfactant or
(preferably in an amount of 0.01 to 1%)

a corrosion inhibitor (e.g. sodium nitrite, sodium
benzoate, triethanolamine and ammonium hydroxide
25 (preferably in an amount of 0.01 to 10%),
and/or

a miticide (such as benzyl benzoate, pyrethroid
pemethrin, d-allethrin and optionally a synergist such
as pipernoyl butoxide (preferably in an amount of 0.1
30 to 10%)).

It has been found that deactivants of the invention have as effective allergen deactivating properties as tannic acid but without the drawback of staining.

5

The invention will now be illustrated by the following Examples.

The test procedure in Examples 1 to 17 is as follows and is known as the ELISA protocol.

10

The ELISA protocol for Der-f has been developed as follows as a measure of denaturing property for denaturants.

ELISA Protocol 1

15

1. Dust is collected from Hoover (a trademark) bags and passed through a series of sieves down to 63 microns.

20

2. Clean petri dishes are labelled with the chemical to be tested (on the base), three replicates are used for each treatment.

25

3. Filter paper is used to line each dish and 0.2g of dust is added to each dish onto the filter paper. The lid (or base, as dishes are inverted) is replaced and the dish is shaken to disperse of dust evenly over the filter paper.

30

4. 2% aqueous solutions of deactivant was used except for the silver chloride composite where 0.05% was used instead. Immobilised tannic acid was used as a 1%.

dispersion. The hydrogenated hop end was used at the 2% level (in the form of a 10% solution). Water insoluble deactivant were emulsified with surfactant (a sorbitone oleate surfactant (i.e. Tween). Hinokitol was used at 0.5% not 2%.

5

5. The dust is sprayed with the corresponding treatment, 2 sprays are required for sufficient coverage (1 spray = 1.5ml).

10 6. Leave uncovered at room temperature, in well aerated room, until filter paper is dry. This can take up to 4 hours.

15 7. Empty dust in epindorfs labelled according to treatment.

8. Add 1 ml of 5% Bovine Serum Albumen Phosphate Butter Saline - Tween BSA-PBS-T to each epindorf (5 times the weight of dust) (20ml of BSA-PBS-T = 1g of BSA in 20ml of PBS-T).

20

9. Leave overnight in the fridge.

10. Centrifuge for 5 minutes at 13,000 rpm.

25 11. Decant the supernatant into a new epindorf labelled according to treatment.

12. Centrifuge again for 5 minutes at 13,000 rpm.

30 13. Make up dilution's of 1:10 and 1:100 by adding 100ul of neat solution to 900ul of 1% BSA-PBS-T (1:10).

This is repeated using 100ul of 1:10 dilution and add to 900ul of 1% BSA-PBS-T for 1:100 dilution.

ELISA Protocol 2 for Der f 1: Indoor Biotechnologies

- 5 1. Prepare samples and dilutions as in protocol 1.
2. Prepare 500 ml of 50 mM carbonate/bicarbonate buffer by dissolving **0.795g** Na_2CO_3 and **1.465g** NaHCO_3 in **500ml** of distilled water. Check the pH is at 9.6.
10 (This solution is kept in the fridge in a conical flask).
3. Monoclonal antibody, this is kept in the freezer. (1µg per well ; 11ml is needed) has to be added to the buffer using the following method this is
15 applied to the ELISA plate:
 - **11ml** of carbonate/bicarbonate buffer is added to the dispensing tray.
 - **11µl** of Der f 1 monoclonal antibody
(Stored in freezer, epindorf in use is in
20 the fridge) is added to the buffer. To ensure that all the antibody is removed from the tip, wash out the pipette tip by sucking up and down I the buffer solution, gently stirring to mix thoroughly.
- 25 4. Pipette **100µl** of the antibody solution into each well of the microtiter plate, cover with a plate sealer and leave overnight at 4°C.
- 30 5. Empty the plate by quickly inverting it over the sink, then dry by banging on a stack of paper

towels.

6. Add **200µl** of wash buffer to each well: PBS/0/05%
tween (PBS-T).

5 7. Repeat stages 5 and 6 once more (making a total of 2
washes).

8. Make sure all the wells are dry, then add **100µl** of
1% BSA-PBS-T. Replace the plate sealer and incubate
10 for **1 hour** at room temperature*.

9. Repeat steps 5 to 7 (2 washes).

10. *During the hour incubation period, prepare the
allergen standards at dilutions between 125 and 1
15 ng/ml Der f 1:

- Add **25µl** of allergen standard (kept in the
fridge in polystyrene box) to **475µl** of 1% PBS-BSA-T
and mix thoroughly - labelled '125'.

20 - **250µl** of 1% PBS-BSA-T is added 7 further
epindorfs which are labelled 62.5, 31.25, 15.63,
7.61, 3.9, 1.95 and 0.98.

- **250µl** is taken from the 1st epindorf (labelled
125) and transferred to the next (labelled 62.5).
This is mixed thoroughly.

25 - Using a new pipette tip, **250µl** is removed from
epindorf labelled 62.5 and transferred to 31.25,
this procedure is continued down to the 0.98
concentration (125, 62.5, 31.25, 15.63, 7.61, 3.9,
1.95, 0.98)

30 - In total $475 + (250 \times 7) = 2.3\text{ml}$: 0.023g of BSA

added to 2.3ml of PBS-T.

5 11. Add **100 μ l** aliquots of the allergen sample to the plate along with the standard allergen samples for the reference curve in duplicate. The standards usually go in the first two columns on the left hand side, with the least concentrated on top. Incubate for 1 hour.

10 12. Follow stages 5 to 6, completing a total of 5 washes.

15 13. Pore **11ml** of 1% BSA-PBS-T (0.11g of BSA to 11ml of PBS-T) to the dispensing tray. Add **11 μ l** of the biotinylated monoclonal antibody (fridge) and mix thoroughly.

14. Pipette **100 μ l** into each well and incubate for 1 hour at room temperature.

20 15. Empty plate and wash as described in stage 12. (5 washes).

25 16. Add **11 μ l** of Streptavidin (freezer) to **11ml** of 1%BSA-PBS-T. Pipette **100 μ l** into each well and incubate for 30 minutes. Reserve any remaining solution in a vial.

17. Empty plate and wash as described in stage 12 (5 washes).

30 18. Make a solution of OPD, by putting the two tablets (in silver and gold foil) into 20 ml of distilled

water (in a glass vial). Shake quite vigorously in the dark until the tablets have dissolved (Wrap the vial up either in tin foil or paper towel).

- 5 19. Add a small amount to the remaining solution from stage 16. Wait for a colour change (positive reaction). Add 200 μ l to each well and incubate for a minimum of 30 minutes in the dark.
- 10 20. Read the plate at 450nm/405nm if filter not available.

Examples 1 to 26

15 The deactivants, as set out in the following table, were treated according to the above procedure and the results are as given below. Tannic acid was used as a comparator. What was measured after treatment with deactivation tannic acid was the amount of allergen remaining active after treatment. The ratio of amount of remaining active allergen after treatment with

20 deactivant tannic acid is also given.

25

30

Table

Example	Deactivant	Amount of Allergen remaining active after deactivant treatment	Amount of Allergen remaining active after tannic acid treatment	Ratio of remaining active allergen after Deactivant/Tannic Acid Treatment	Number
5					
1	Urea	3750	1500	2.500	i
2	Polymeric dialdehyde	1325	550	2.409	xxvi
3	Cedarwood oil	1800	750	2.400	ii
4	Cyclodextrin	3850	1700	2.265	iii
5	hexadecyltrimethylammonium chloride	4075	1800	2.264	iv
6	Aluminium chlorohydrate	1675	750	2.233	v
7	1-propoxy-propanol-2	3950	1800	2.194	vi
8	Silica Gel (Kent)	2037.5	933.5	2.183	viii
9	polyquaternium-10 (Polymer JR-125)	4335	2000.00	2.168	vii
10	Hydrogenated Hop Oil	1100	550	2.000	ix
11	Propylene glycol alginate	3175	1700	1.868	x
12	Poly vinyl pyrrolidone	2450	1425	1.719	xi
13	Ammonium sulphate	2750	1700	1.618	xii
15					

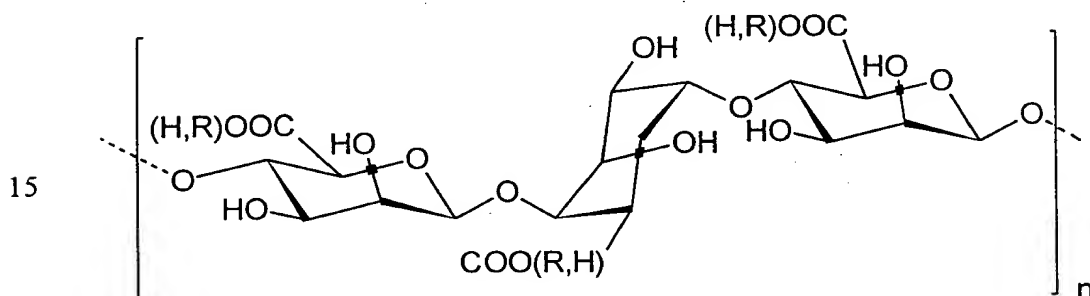
Example	Deactivant	Amount of Allergen remaining active after deactivant treatment	Amount of Allergen remaining active after tannic acid treatment	Ratio of remaining active allergen after Deactivant/Tannic Acid Treatment	Number
14	Hinokitol (0.5%)	3065	2000.00	1.533	xiii
15	N-methyl pyrrolidone	1600	1175	1.362	xiv
16	L-Ascorbic Acid	2000	1500	1.333	xv
17	Immobilised Tannic Acid	1550	1175	1.319	xvi
18	Aerosol OT	1525	1175	1.298	xxiv
19	Chlorohexidine	1412.5	1425	0.991	xvii
20	Parsley Camphor	1225	1387.5	0.883	xv
21	Maleic anhydride	1312.5	1500	0.875	xxviii
22	Anthraquinone sodium salt	1530	2000	0.765	xix
23	Hinoki oil	1025	1387.5	0.739	xx
24	Composite of AgCl and TiO ₂	1025	1425	0.719	xxi
25	Germall II	950	1387.5	0.685	xxii
26	Thymol	725	1387.5	0.523	xxiii

In the table certain compounds are used that are defined as follows:

Hydrogenated Hop Oil is the potassium salt of tetrahydroiso humulinic acid (known as reduced isomerised hop extract).

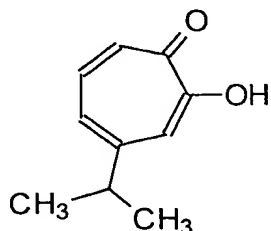
Polymeric dialdehyde is a compound containing 2-200 recurring units of the formula III.

Propylene glycol alginate is

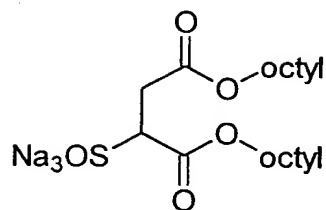


Chlorohexadene is 1,1'-hexamethylene bis [5-(4-chlorophenyl)-biguanide]

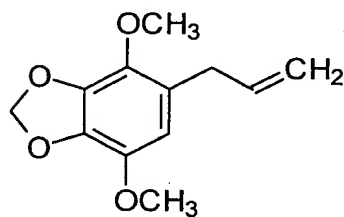
Hinokitiol is β -thujaplin, a compound of the formula



Aerosol OT is a compound of the formula



10 Parsley extract is a compound of the formula



20 Hinoki oil is a mixture of Thujan-3-one, 2-pinene, 3,5,7,3',4' pentahydroflavanone and 1,3,3,- trimethyl-2-norcamphanone.

Germall II is diazolidinyl urea and Thymol is 6-isopropyl -m- cresol

Examples 27 to 30

25

The following formulations can be made up as a compositions for use as an aerosol for deactivating der-f allergens).

30

EXAMPLE 27

	<u>Raw Ingredient Description</u> <u>By Weight</u>	<u>Item Classification</u>	<u>%</u>
5	Anhydrous Ethanol (SD Alcohol 40)	Solvent	79.646
	Alkyl dimethyl benzyl ammonium saccharinate	Cationic Surfactant	0.106
	Corrosion Inhibitor		0.192
10	Corrosion Inhibitor		0.192
	Corrosion Inhibitor		0.096
	Deionized Water	Water/Solvent	15.768
15	Carbon Dioxide	Propellant	4.000
	TOTAL		100.000

20

25

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EXAMPLE 28

Raw Ingredient Description by Weight	Item Classification	%
5 Anhydrous Ethanol (SD Alcohol 40)	Solvent	* 57.000
Fragrance#17	Fragrance	0.0500
Dow Corning 193 Surfactant	Surfactant	0.025
10 Corrosion Inhibitor		0.100
Corrosion Inhibitor		0.100
Deionized Water	Water/solvent	* 14.725
15 NP-40/Butane 40	Hydrocarbon propellant	28.000
TOTAL		100.000

* = May replace with 95% Ethanol (SD Alcohol 40) at 61.755% by weight and 9.970% by weight Deionized water.

20

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EXAMPLE 29

	<u>Raw Ingredient</u> <u>Description by Weight</u>	<u>Item Classification</u>	<u>%</u>
5	Anhydrous Ethanol (SD Alcohol 40)	Solvent	79.646
	Benzyl Benzoate - an acaricide	Active/ester	4.600
10	Alkyl dimethyl benzyl ammonium saccharinate	Cationic Surfactant	0.106
	Corrosion Inhibitor		0.192
	Corrosion Inhibitor		0.192
	Corrosion Inhibitor		0.096
15	Deionized Water	Water/solvent	11.168
	Carbon Dioxide	Propellant	4.000
	TOTAL		100.000

20

25

30

EXAMPLE 30

	<u>Raw Ingredient</u> <u>Description by weight</u>	<u>Item Classification</u>	<u>%</u>
5	Anhydrous Ethanol (SD Alcohol 40)	Solvent	*57.000
	Benzyl Benzoate	Active/ester	4.600
	Fragrance#17	Fragrance	0.0500
10	Dow Corning 193 Surfactant	Surfactant	0.025
	Corrosion Inhibitor		0.100
	Corrosion Inhibitor		0.100
15	Deionized Water	Water/solvent	*10.125
	NP-40/Butane 40	Hydrocarbon propellant	28.000
	TOTAL		100.000

20 * = May replace 95% Ethanol (SD Alcohol 40) at 61.755%
by weight and 5.370% by weight Deionized water.

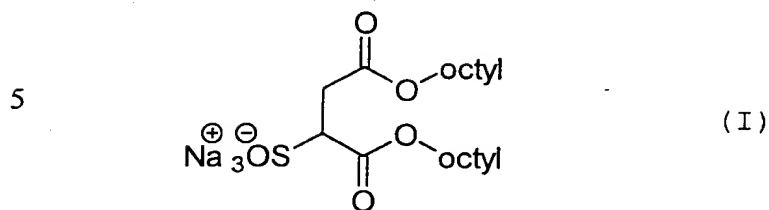
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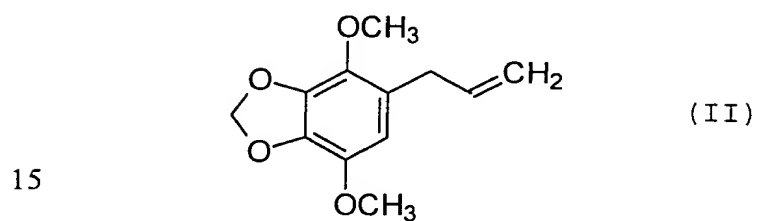
CLAIMS

1. A method for deactivating a Der-f allergen
comprising contacting the allergen with a deactivating
effective amount of one or more of deactivants (herein
after defined as the Deactivant) selected from
- i) urea,
 - ii) cedarwood oil,
 - iii) cyclodextrin,
 - 10 iv) hexadecyltrimethylammonium chloride
 - v) aluminium chlorohydrate,
 - vi) 1-propoxy-propanol-2,
 - vii) polyquaternium-10
 - viii) silica gel ,
 - 15 ix) hydrogenated hop oil,
 - x) propylene glycol alginate,
 - xi) polyvinyl pyrrolidone,
 - xii) ammonium sulphate,
 - xiii) hinokitiol,
 - xiv) N-methyl pyrrolidone,
 - 20 xv) L-ascorbic acid,
 - xvi) "immobilised tannic acid", (hereinafter
defined)
 - xvii) chlorohexidine,
 - xviii) maleic anhydride,
 - xix) the sodium salt of anthraquinone,
 - 25 xx) hinoki oil,
 - xx) a composite of silver chloride and TiO_2 ,
 - xxi) diazolidinyl urea,
 - xxii) 6-isopropyl-m-cresol,

xxiv) a compound of formula I,

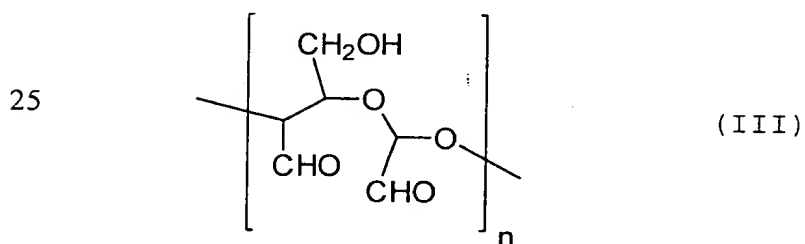


10 xxv) a compound of formula II



and

20 xxvi) a polymeric compound containing two or more of a recurring unit of the formula III



30 where n = 2 to 200

2. A method according to Claim 1 in which the amount of Deactivant present is from 0.5 oz to 5 oz per 10 yds?

3. A method according to Claim 1 or Claim 2 in which the Deactivant is selected from

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hinoki oil,
a composite of AgCl with TiO₂,
diazolidinyl urea
6-isopropyl-m-cresol,
10 chlorohexidine,
maleic anhydride,
the sodium salt of anthraquinone and
a compound of formula I or II, defined in Claim 1.

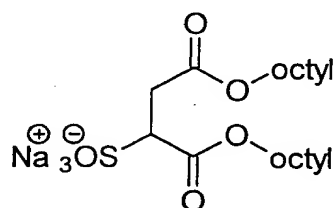
4. An aerosol composition containing

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a) a deactivant selected from

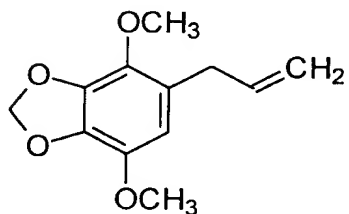
- i) urea,
- ii) cedarwood oil,
- 20 iii) cyclodextrin,
- iv) hexadecyltrimethylammonium chloride
- v) aluminium chlorohydrate,
- vi) 1-propoxy-propanol-2,
- vii) polyquaternium-10
- viii) silica gel,,
- 25 ix) hydrogenated hop oil,
- x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- xii) ammonium sulphate,
- xiii) hinokitiol,
- 30 xiv) N-methyl pyrrolidone,
- xv) L-ascorbic acid,

- xvi) "immobilised tannic acid", (hereinafter defined)
- xvii) chlorohexidine,
- xviii) maleic anhydride,
- xix) the sodium salt of anthraquinone,
- xx) hinoki oil,
- xxi) a composite of silver chloride and TiO_2
- xxii) diazolidinyl urea,
- xxiii) 6-isopropyl-m-cresol,
- xxiv a compound of formula I,



(I)

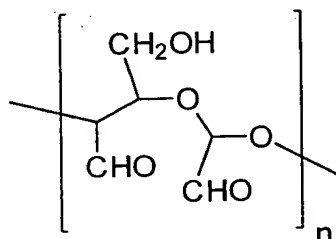
- xxv) a compound of formula II



(II)

and

- xxiv) a polymeric compound containing two or more of a recurring unit of the formula III



(III)

where $n = 2$ to 200 (hereinafter defined as the Deactivant).

b) a propellant and

c) optionally a solvent.

6. A composition according to Claim 5 in which the amount of Deactivant present in such a composition is from 0.01 to 7%, the amount of propellant present in such a composition is 0.05 to 3%, and the amount of solvent present in such a composition is 0 to 99.95%.

7. A composition according to Claim 5 or Claim 6 in which the Deactivant is selected from

hinoki oil,

a composite of AgCl with TiO_2 ,

diazolidinyl urea,

6-isopropyl-m-cresol,

chlorohexidine,

maleic anhydride,

the sodium salt of anthraquinone and

a compound of formula I or II defined above.

8. A composition according to any one of Claims 4 to 7 in which the propellant is selected from C₁₋₄ alkane and carbon dioxide.
- 5 9. A composition according to any one of Claims 4 to 8 in which the solvent is selected from C₁₋₆ alcohols (e.g. ethanol) or water.
- 10 10. A composition according to any one of Claims 4 to 9 in which the composition may also contain one or more of the following
- a fragrance,
 - a surfactant (e.g. Dow Corning 193 Surfactant
 - an antimicrobial agent (e.g. alkyl dimethyl benzyl ammonium saccharinate),
 - 15 a corrosion inhibitor (e.g. sodium nitrite, sodium benzoate, triethanolamine and ammonium hydroxide), and/or
 - a miticide (such as benzyl benzoate).
- 20 11. A method for denaturing a Der-f allergen substantially as herein described with reference to any one of the Examples.
- 25 12. A composition substantially as herein described with reference to any one of the Examples.

ABSTRACT

Improvements in or relating to organic compositions

5 A method for deactivating a Der-f allergen comprising
contacting the allergen with a deactivating effective
amount of one or more of deactivants (herein after
defined as the Deactivant) selected from

- 10 i) urea,
- ii) cedarwood oil,
- iii) cyclodextrin,
- iv) hexadecyltrimethylammonium chloride
- v) aluminium chlorohydrate,
- vi) 1-propoxy-propanol-2,
- 15 vii) polyquaternium-10
- viii) silica gel,
- ix) hydrogenated hop oil,
- x) propylene glycol alginate,
- xi) polyvinyl pyrrolidone,
- 20 xii) ammonium sulphate,
- xiii) hinokitiol,
- xiv) N-methyl pyrrolidone,
- xv) L-ascorbic acid,
- xvi) "immobilised tannic acid", (hereinafter
defined);
- 25 xvii) chlorohexidine,
- xviii) maleic anhydride,
- xix) the sodium salt of anthraquinone,
- xx) hinoki oil,
- xxi) a composite of silver chloride and TiO_2
- 30 xxii) diazolidinyl urea,
- xxiii) 6-isopropyl-m-cresol,

xxiv - xvi) a compound of formula I, II or a polymeric compound containing two or more of a recurring unit of the formula III.

5 An aerosol composition containing

- i) a specific deactivant
- ii) a propellant and
- iii) optionally a solvent.

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